

NOISE IMPACT ASSESSMENT REPORT

UNIT 5, CAXTON TRADING ESTATE

HAYES

UB3 1AP

For

NORTHCREEK ESTATES HAYES LIMITED



DATE:	24 January 2014
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REVISION No:	1.0
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1 EXECUTIVE SUMMARY

It is proposed to subdivide Unit 5 in the Caxton Trading Estate from two units into 14 smaller units.

Hilson Moran has undertaken an environmental noise survey at the site, in order to determine prevailing background noise levels that are representative of the nearest identified noise sensitive properties on Nield Road, Hayes.

The results of the noise survey were considered reasonable, considering the location of the measurement position and the existing dominant nearby noise sources.

Noise limits have been proposed, based on the results of the noise survey and the requirements of Hillingdon Borough Council. Preliminary details of mitigation measures have been described which could be incorporated into the building design to ensure compliance with the noise limits.

2 INTRODUCTION

It is proposed to subdivide Unit 5 inside the Caxton Trading Estate from two units into 14 smaller units. Activities in the proposed units could have the potential to affect existing noise sensitive properties nearby.

Hilson Moran has undertaken an environmental noise survey at the site, in order to determine prevailing background noise levels that are representative of the nearest noise sensitive properties.

The purposes of this report are:

- To determine prevailing background noise levels at the nearest noise sensitive properties
- To propose noise limits for future operations, based on the noise survey results and the requirements of Hillingdon Borough Council
- To propose preliminary noise mitigation measures which could be incorporated into the building design

Following this introductory section, a description of the site is given in Section 3. Section 4 gives a description of the environmental noise survey methodology, with results presented in Section 5 and Appendix B. Local authority requirements are given in Section 6 together with potential mitigation measures which could be incorporated into the building design.

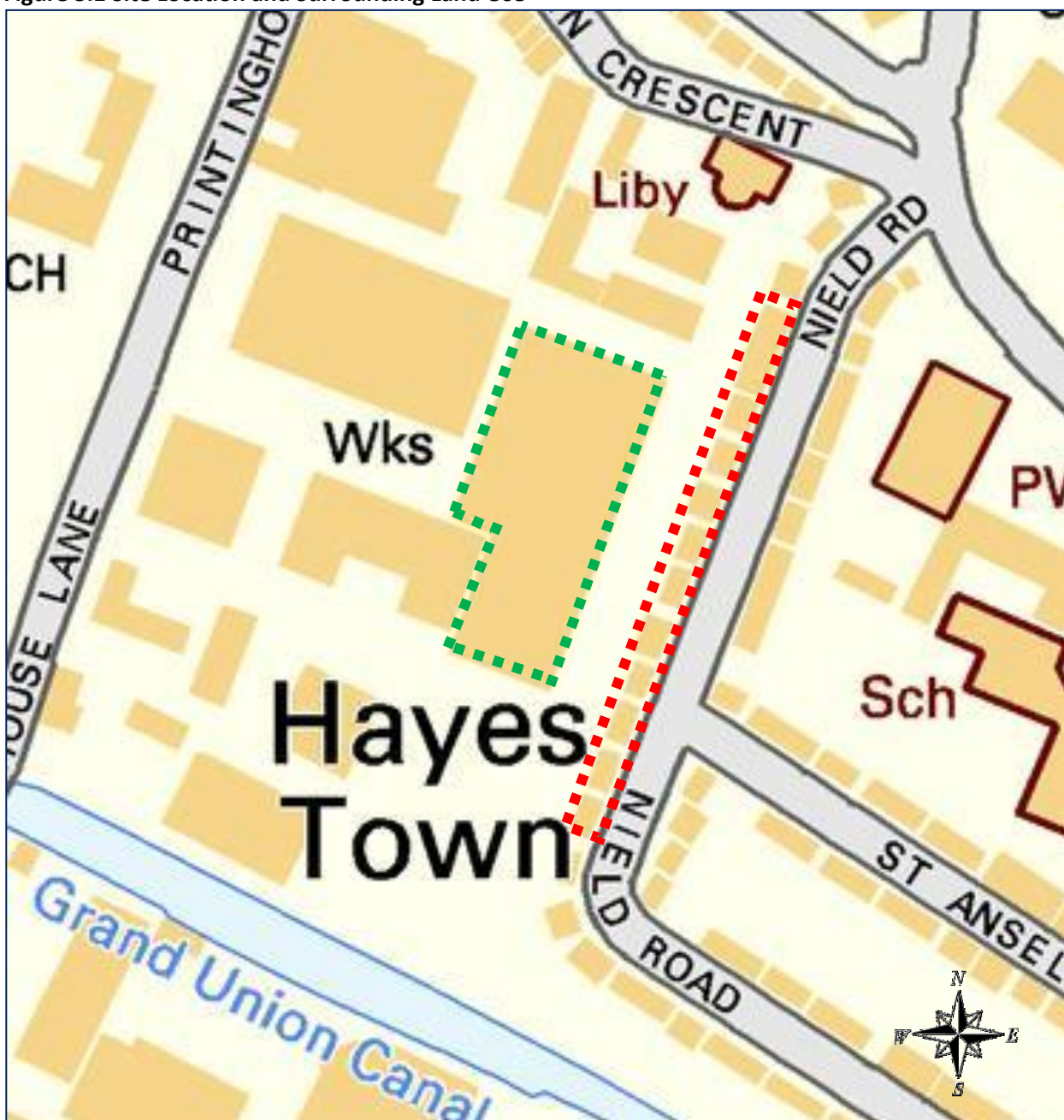
Appendix A presents an explanation of the acoustic terminology used in this report.

3 SITE DESCRIPTION

The identified site is an industrial unit within the Caxton Trading Estate in Hayes. The general surrounding area was noted to be predominantly industrial with residential dwellings nearby. The site is bounded by a builder's yard to the south, industrial units to the west and north, and residential properties to the east behind a row of trees.

Figure 3.1 shows the site and its surroundings, with the identified site highlighted in **green** and the nearest identified residential properties highlighted in **red**.

Figure 3.1 Site Location and Surrounding Land Use



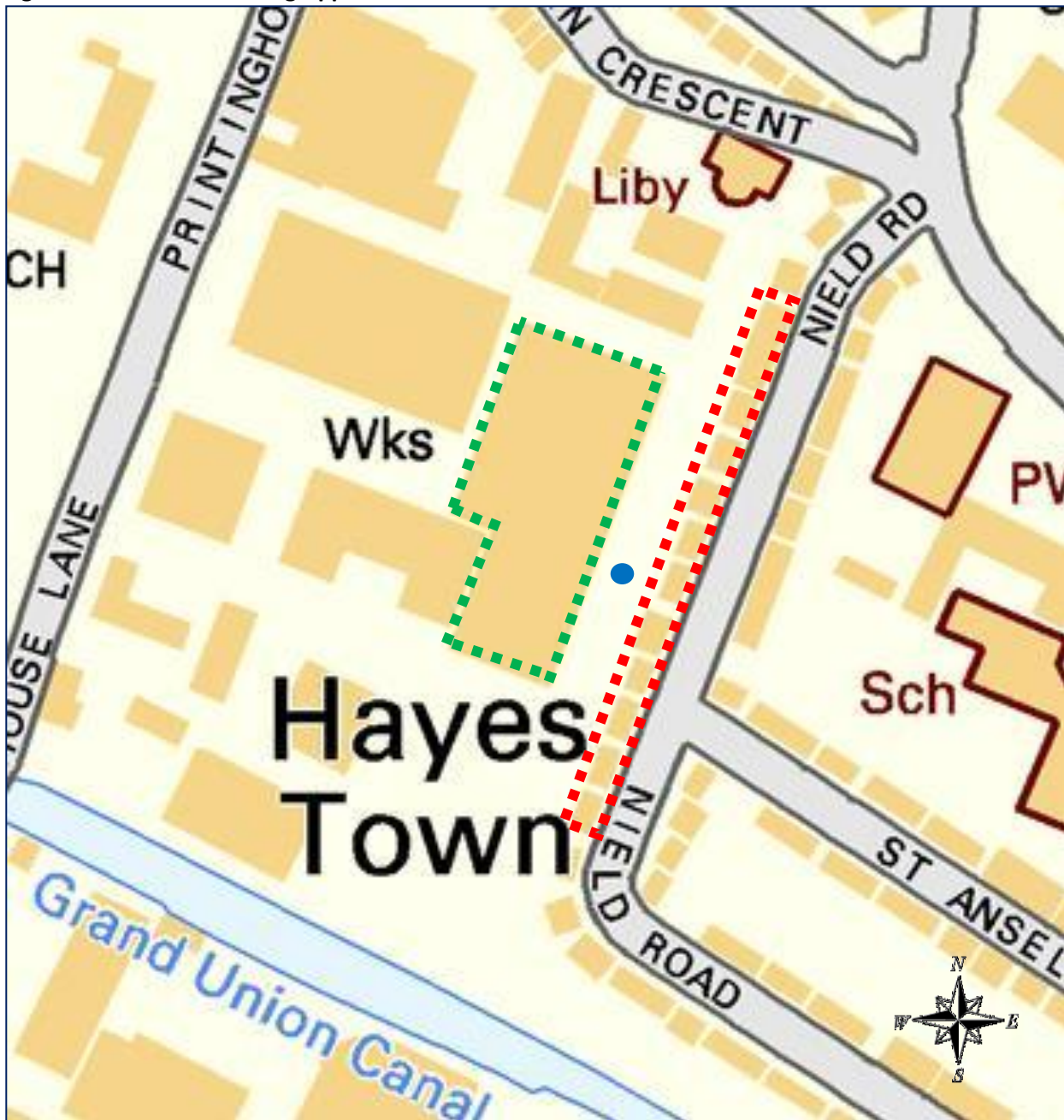
4 SURVEY METHODOLOGY

An unmanned environmental noise survey was undertaken at a single measurement location at the proposed site. The survey was undertaken between approximately 10:00 hours on Friday 17 January 2013 and 10:00 hours on Tuesday 21 January 2013.

L_{Amax} , L_{Aeq} and L_{A90} noise levels were measured throughout the noise survey.

The measurement position is indicated in blue on Figure 4.1 below.

Figure 4.1 Site Plan Showing Approximate Location of Measurement Position



The measurement microphone was attached to the end of a pole and attached to a tree located on the site boundary between the trading estate and the nearest residential properties, at a height of 3m. This measurement position is considered representative of background noise levels at the nearest noise sensitive properties.

The equipment used for the noise survey is summarised in Table 4.1.

Table 4.1 Description of Equipment used for Noise Survey

Equipment	Description	Quantity	Serial Number
01 dB Solo	Type 1 automated logging sound level meter	1	61719
01 dB PRE 21	Type 1 ½" microphone and pre-amplifier	1	15079
01 dB BAP 21	Outdoor microphone casing	1	11038
01 dB CAL 21	Calibrator	1	34213781

Due to the nature of the noise survey, i.e. unmanned, we are unable to comment on the weather conditions throughout the entire noise survey period. However, at the beginning and end of the survey period, there was noted to be no rainfall, a cloudy sky and only light wind.

The noise monitoring equipment used was calibrated before and after the noise survey period. No significant change was found. Equipment calibration certificates can be provided upon request.

5 SURVEY RESULTS AND OBSERVATIONS

5.1 Results

Appendix B presents time history graphs showing the L_{Amax} , L_{Aeq} and L_{A90} noise levels measured throughout the noise survey at the measurement position.

We would consider the noise levels measured to be reasonable, considering the location of the measurement positions and the dominant nearby noise sources.

The measured L_{A90} and L_{Aeq} noise levels at the measurement position, during typical operational periods (08:00-18:00 hours weekdays, 09:00-13:00 hours Saturdays), are summarised in Table 5.1 below.

Table 5.1 Measured Background L_{A90} and L_{Aeq} Noise Levels

Time Period	L_{Aeq}	L_{A90}
17/01/14 - 10:00 - 11:00	65	54
17/01/14 - 11:00 - 12:00	57	54
17/01/14 - 12:00 - 13:00	57	53
17/01/14 - 13:00 - 14:00	55	52
17/01/14 - 14:00 - 15:00	55	52
17/01/14 - 15:00 - 16:00	57	53
17/01/14 - 16:00 - 17:00	58	54
17/01/14 - 17:00 - 18:00	58	53
18/01/14 - 09:00 - 10:00	55	53
18/01/14 - 10:00 - 11:00	55	52
18/01/14 - 11:00 - 12:00	54	51
18/01/14 - 12:00 - 13:00	54	51
20/01/14 - 08:00 - 09:00	59	54
20/01/14 - 09:00 - 10:00	60	54
20/01/14 - 10:00 - 11:00	59	53
20/01/14 - 11:00 - 12:00	57	47
20/01/14 - 12:00 - 13:00	48	45
20/01/14 - 13:00 - 14:00	46	41
20/01/14 - 14:00 - 15:00	47	41
20/01/14 - 15:00 - 16:00	46	41
20/01/14 - 16:00 - 17:00	44	40
20/01/14 - 17:00 - 18:00	46	39
21/01/14 - 08:00 - 09:00	51	46
21/01/14 - 09:00 - 10:00	50	47

5.2 Observations

Due to the nature of the unmanned noise survey we are unable to comment on the exact noise climate throughout the entire survey period. However, at the beginning and end of the survey period the daytime noise climate was noted to be affected by noise from distant road traffic as well as occasional activities at the

nearby builder's yard. We anticipate that distant road traffic noise would also be present during night-time periods.

6 INDUSTRIAL NOISE EMISSIONS

6.1 Local Authority Requirements

The proposed site lies within the jurisdiction of Hillingdon Borough Council who require industrial noise to be limited to a level 5dB less than the background noise level at the nearest noise sensitive properties.

The lowest background noise level measured during typical operation hours (08:00-18:00 hours weekdays, 09:00-13:00 hours Saturdays) was 39 dB L_{A90} , therefore total industrial noise emissions from the proposed subdivided unit would need to be limited to 34 dB L_{Aeq} at the nearest noise sensitive properties during these hours.

6.2 Mitigation Measures

The design of the subdivided unit is at an early stage and future tenants are unknown. However, this does permit suitable mitigation measures to be incorporated into the design of the building, as well as the tenant's design of each unit.

Mitigation measures that can be incorporated into the building design include:

- Detailed design and selection of roller shutters so as to maximise sound insulation
- Detailed design of other elements of the building envelope (glazing, cladding) so as to maximise sound insulation
- Noise level specifications in the tenancy agreements for each new unit, which will ensure that the overall noise limit (see Section 6.1) is not exceeded.

Example acoustic wording for a tenancy agreement is shown in Appendix C. Each tenant will be required to undertake an acoustic assessment of their activities so that their anticipated noise levels, as well as any necessary noise mitigation measures, can be submitted to the landlord to ensure compliance with the tenancy agreement.

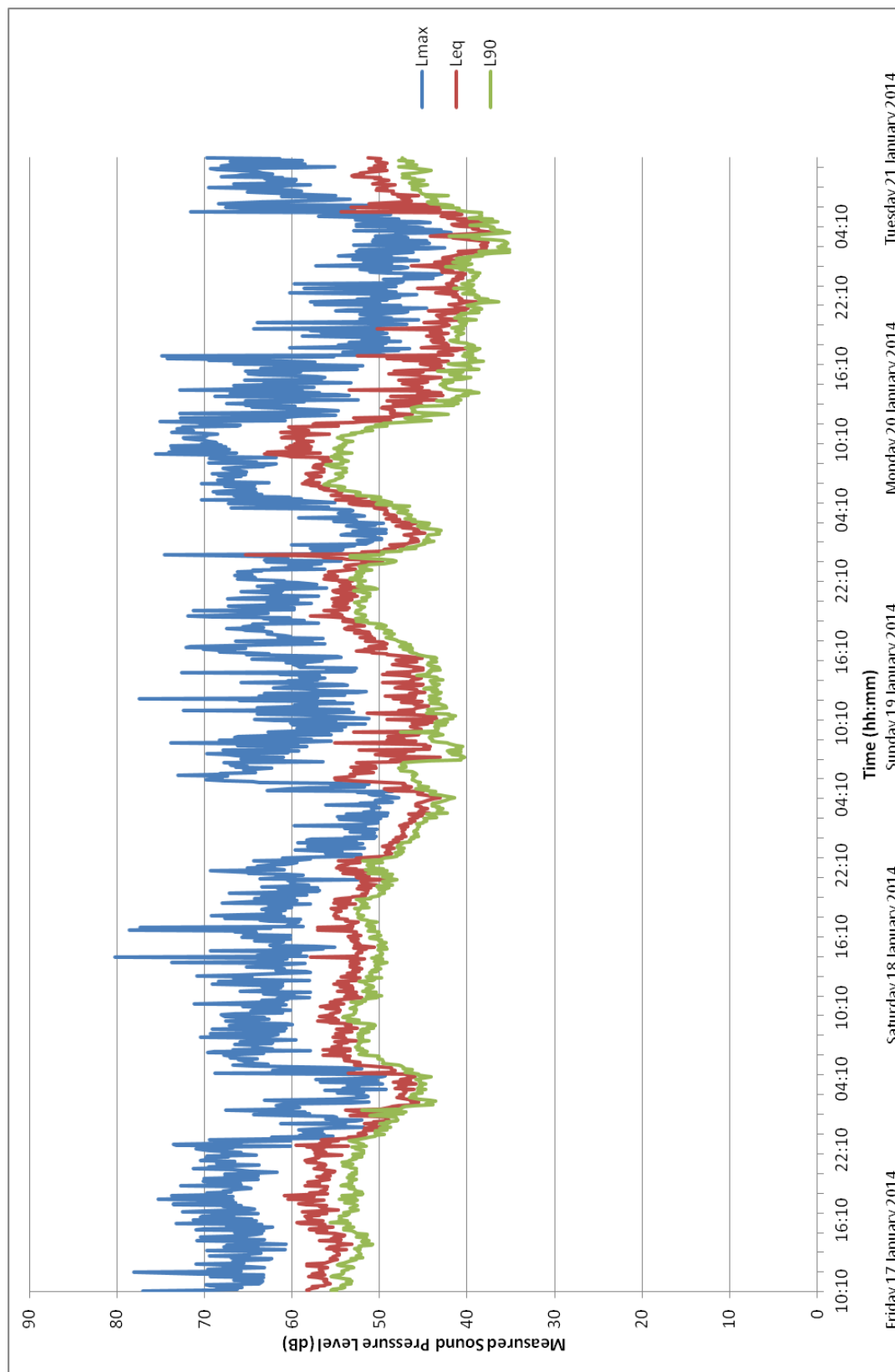
Mitigation measures that could be incorporated into the design of each tenant's unit include:

- Acoustic attenuation measures fitted to any new items of building services plant (attenuators, enclosures, etc), so as to achieve the requirements in the tenancy agreement
- Restricting noisy internal activities to specifically-constructed rooms or enclosures within each unit, so as to achieve the requirements in the tenancy agreement.

APPENDIX A – ACOUSTIC TERMINOLOGY

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
$L_{n,T}$	The noise level exceeded for n% of the time over a given period T. e.g. L_{90} , the noise level exceeded for 90% of the time (background noise level).
L_{max}	The maximum noise level measured.

APPENDIX B – NOISE SURVEY RESULTS



APPENDIX C – EXAMPLE TENANCY AGREEMENT FORM OF WORDS

1.0 General

The Tenant's operations, activities and building services plant shall be designed, installed and maintained such that:

(a) it does not cause constitute a noise nuisance

and

(b) it is not disturbing in other demises within the building

and

(c) it achieves any Local Authority planning/Environmental Health/Building Control requirements

and

(d) total external noise emissions from the demise (activity and building services noise) do not exceed a level of 32 dB L_{Aeq} (1 hour) during operational periods (08:00-18:00 hours weekdays, 09:00-13:00 hours Saturdays), when measured externally at a distance of 10m in any direction from the external façade/roof.

2.0 Noise due to Operations

Noise due to operations is expected to include activity noise within the demise, as well as noise due to any building services plant or plant rooms within the Tenant's demise. Activities shall not take place outside the hours of 08:00-18:00 hours on weekdays and 09:00-13:00 hours on Saturdays.

Noise break-out to external areas shall be limited so as to comply with the requirements of the Local Authority. So as to comply with the general requirements given in Section 1.0, it is suggested that the Tenant limits activity noise levels in his demise to those shown in Table 1.

Table 1. Suggested Activity Noise Limits

Maximum L_{eq} (1 hour) Sound Pressure Level (dB re 2×10^{-5} Pa) at								L_{Aeq} (1 hour)
Octave Band Centre Frequency (Hz)								
63	125	250	500	1k	2k	4k	8k	
80	70	65	60	60	57	55	53	66

Should the Tenant wish to operate at greater noise levels than those shown in Table 2, additional sound insulation measures may be necessary as part of the Tenant's fit-out e.g. upgraded roller shutters/doors, construction of enclosures around noisy activities/equipment, etc.

Any additional measures shall be proposed by the Tenant to the Landlord. The design proposal shall include, as appropriate, calculations and manufacturer's sound insulation test results for any proprietary systems.

3.0 Building Services Plant Noise and Vibration

External noise emissions from building services plant shall be limited so as to comply with the requirements of the Local Authority.

Building services plant noise emissions to external areas shall be limited to a maximum of 29 dB L_{Aeq} (1 hour) during operational periods (08:00-18:00 hours weekdays, 09:00-13:00 hours Saturdays), when measured externally at a distance of 10m in any direction from the external façade/roof.

Noise from the Tenant's plant should not exhibit any tonal content. Where any tonal content is apparent, the noise limits in this document shall be reduced by 5 dB. Building services plant shall not operate outside the hours of 08:00-18:00 hours on weekdays and 09:00-13:00 hours on Saturdays.

All Tenant plant shall be appropriately vibration isolated.

The Tenant shall be responsible for maintaining plant to ensure that worn or damaged components do not increase the noise or vibration output.

The Tenant shall submit to the Landlord details of plant noise and vibration emissions and a scheme for attenuation/control thereof so as to comply with the specified limits, prior to commencing any installation.

The plant noise data is likely to be subject to manufacturer's tolerances. The Tenant team should allow for this in their proposals.

4.0 Submission of Proposals

The Tenant's proposals to control noise and vibration to within the specified limits shall be submitted to the Landlord and shall include:

- Description of likely activities within the Tenant's demise
- Predicted operational noise levels within the Tenant's demise
- Predicted operational noise break-out levels to external areas
- Details of any additional sound insulation measures that are deemed necessary
- Manufacturer's noise emission data for any building services plant
- Manufacturer's noise reduction data for any plant noise attenuation (attenuators, etc.)
- Predicted noise levels within any plant rooms in the Tenant's demise
- Predicted plant room noise break-out levels to external areas
- Predicted external noise emissions from the Tenant's building services plant
- Predictions of the total worst-case noise emissions from the demise (activities and building services plant)
- Details of the Tenant's proposed vibration isolation measures

DOCUMENT HISTORY

ISSUE NO	DATE	DETAILS
1.0	24 January 2014	Final document.